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FROM BRUTE TO MAN.

BY CHARLES MORRIS.

THAT man as an animal is an offspring of the lower life kingdom, none who are familiar with the facts of science now think of denying. Despite the indignant protest against this idea when promulgated by Darwin less than thirty years ago, it is now generally accepted by all those who have fully considered the evidence, and who therefore are alone competent to decide upon it. But that man as a thinking being has descended from the lower animals is a very different matter, and is by no means proved. Regarding the origin of man's intellect, there is much difference of opinion, even among scientists, and such a radical evolutionist as Alfred Russel Wallace finds here a yawning gap in the line of descent, and believes that the intellect of man is a direct gift from the realm of spirits. His explanation, it is true, is more difficult than the difficulty itself. It cannot justly be called a hypothesis, for a hypothesis should have some facts to give it warrant, and this has none. That man's mind cannot be explained on the principle of natural selection alone we may, with Wallace, admit. But it certainly would have been better had he on his part more fully considered the possibilities of use and effort, and other natural agencies, before dragging in the angels to bridge the chasm.

That man's intellect at its lowest level is not different in kind from the brute intellect at its highest level Romanes has satisfactorily shown. His evidence, indeed, is superabundant. Controversy on this subject is too apt to be based on the difference between the intellect of the brute and that of enlightened man. Yet the mental gap between the latter and the lowest savage is quite as great as that between the savage and the brute. From the intellect of the animal to that of enlightened man the distance is enormous, yet throughout its whole extent, with a single exception, can be traced intermediate steps of mental development

This exception is the interval between the anthropoid ape and the primitive savage. This is the only gap that remains open in the kingdom of the mind,—the one important lost chapter from the story of mental evolution. It is acknowledged by every well-informed scientist that man's body came up from below. Its links of association with the lower animals are too many and too significant to admit of any other theory. Supernaturalism, therefore, has taken its last stand upon man's mind, and claims that here at least the line of descent is a broken one, and that the gap could not have been filled without a direct interposition from the realm of spirit.

This view of the case is not likely to be accepted as final. Science has bridged with facts so many chasms in the kingdom of nature, that it will scarcely be ready to admit, certainly not till the case has been more thoroughly investigated, that here is a chasm which cannot be bridged, and must be leaped. And yet the known facts that bear upon the question are stubborn things to explain on the evolution theory. If, for instance, we examine the existing conditions of ape and savage intellect no evidence of any active evolution can be discovered. However the anthropoid apes gained their mental acuteness, there is nothing to show that it is increasing. The same may be said of the lowest savages. They are mentally stagnant. The indications are that their intellectual progress for thousands of years in the past has been almost nothing. Yet if man is the descendant of an anthropoid ape there must have been an extraordinary degree of mental development between the one state and the other to produce the great increase in size of brain and activity of intellect. Under the present conditions of imperceptible progress, the whole tertiary period of geology, and perhaps much of the secondary period, would be needed to fill the gap. Yet no such extensive interval can be admitted, and if we seek to deduce man's mind from the ape mind we must be able to show that influences existed calculated to produce a much more rapid mental evolution than now can be perceived in either ape or savage.

Man has changed but little physically since he became man, and perhaps changed little during the period in which he was becoming man. Could we behold the species of ape which, in the opinion of evolutionists, was his ancestor, we should probably be able to discover no important differences in form. The change has been in the brain, not in the body. The transforming influences acted upon the organ of the mind, not upon the organs of physical life. The brain has yielded to these forces, not by varying in form, but by increasing in size, and by a special expansion of that portion of it devoted to intellectual activity. This great increase in the size of the brain, with the accompanying remarkable unfoldment of the mental powers, certainly indicated the action of very vigorous and long-continued transforming influences; which, if we may judge from the mental stagnation of the present ape and savage, no longer exist.

It is true that the mental organism may be far more plastic than the body, and that no time relations between the development of the intellect and of the physical structure can be drawn. Transformation, under influences of equal potency, may possibly be produced more rapidly in the one case than in the other. An extraordinary development has taken place in the human intellect within a few thousands or tens of thousands of years, yielding the difference that now exists between the cultivated European and the debased savage, and which perhaps equals that between the latter and the ape. If, therefore, it can be shown that influences were at work upon original man as powerful as those that have produced civilization, we shall have done something towards showing how the ape brain may, in a comparatively limited period, have become the brain of man.

The leading causes of the development of civilized man are not at all difficult to discover. Undoubtedly the most potent among them was the influence of warfare, the struggle between man and man on the one hand, and between man and the conditions of soil and climate in the colder latitudes on the other hand. More recently competition in commerce and industry has taken the place of the warlike struggle for existence, and the contest for wealth and position is continuing the effect which the contest for life produced. Hostility between man and nature, and between man and man, has for ages been invigorating the human intellect, replacing the dull of brain and slow of thought by the quick-witted, energetic, and intelligent, and we may safely look upon this as the most active agent in the unfoldment of civilization.

Was the development from ape to human intellect due to a similar conflict? In the tropics, the home of the savage, war between man and nature scarcely exists, and war between man and man is in its primitive stage. Yet here, as elsewhere, it has much to do with such mental unfoldment as exists. Mastery in warfare is due to superior mental resources, which are gradually gained through the exigencies of conflict, and are shown in greater shrewdnesss or cunning, superior ability in leadership, and the invention of more destructive weapons. War acts vigorously on men's minds, peace acts sluggishly; and the whole story of mankind tells us that intellectual evolution has been due in great part to the destruction in war of the mentally weaker, the preservation of the more energetic and able, and the effect of conflict in producing intellectual activity. But no organized warfare or alert conflict with nature can be perceived in the lowest existing savages. This powerful agent of intellectual development is certainly not at present exerting much influence upon them; they accept the world as they find it, without question or revolt, and their thoughts and habits are as unchangeable as the laws of the Medes and Persians.

But that this stagnancy has always prevailed may well be doubted. The position of the savage is to-day very different from what it was ten or twenty thousand years ago. Then he was dominant upon the earth, the undisputed lord of the kingdom of life. Now new lords of life have come, who are pressing in upon him on every side, preventing his expansion, hampering his activities, and gradually crowding him off the earth. What powers of development primitive man may have possessed can hardly, therefore, be determined from a study of the existing savage, and to gain any solution of the problem we must consider the position of primitive man.

As we have said, the lower savages and the anthropoid apes are at present alike mentally stagnant, while the mental interval between them is very great. But primitive man differed from the lower animals in one important particular. He was lord and master of the animal kingdom, the dominant being in the world of life. He had no rival in this lordship. None of the herbivora, and none of the carnivora, in any full sense, have ever possessed a similar mastery. The large carnivora are dominant only over the weaker herbivora. So far as we know, the only animal which, except in self-defence, will assail the large carnivora, is the gorilla. This powerful ape is the only creature, except man, of which the lion seems afraid. It does not attack it, however, from any desire for mastery, but simply to drive away a dangerous neighbor.

Man stands alone in his relation to the lower animals He is lord of them all. Savages everywhere are aggressive against, and are feared and avoided by, the largest and strongest beasts of their region. This hostility does not come from the wish to drive away an enemy. It is the desire for food or the instinct of control that moves the savage hunter. He feels, and prides himself on, his lordship. Man does not fight defensively, like the gorilla, but offensively, and whatever be his position in relation to his fellow-man, he admits no equal in the world below him.

This lordship was not gained without a struggle, and that a severe and protracted one. The animal kingdom did not submit supinely to man's mastery. The war must have been long and bitter, however fixed and settled the relations now seem. Rest has followed victory. The animal world is now submissive to man, or in dread of his strength and resources, and the strain upon his mental powers has ceased. But there is certainly reason to believe that men's intellectual progress was due to warlike struggles alike in the primitive and in the historic epoch, the former being a conflict with animals, the latter with man.

We cannot describe at length this primitive hostility. It will suffice to say that it must have been attended with a somewhat rapid mental progress, probably greatly in excess of that which we now perceive in apes and lower man. For the battle was fought with the mind, not with the body. That is to say, man did not depend on hereditary instincts and his natural weapons of claws and teeth for victory, but brought his mental resources into play. Cunning, caution, boldness where necessary, close observation, variation in modes of attack and defence to suit varying circumstances, are hostile methods of purely mental origin. They are not peculiar to man; many of the lower animals employ them, though none to such an extent as man. But the use of other than the natural weapons is nearly peculiar to man. Some of the monkeys occasionally and imperfectly employ missiles, but man alone has become aware of their great utility, and employs them constantly and skilfully. By the use of artificial implements of warfare his powers were enormously increased, and the steps of progress in his subordination of the lower animals were doubtless marked out by his invention of more and more efficient weapons.

We take it for granted that the animal world did not submit without a struggle, and a protracted one. Step by step, through many centuries of conflict, were the larger animals subdued. It was man's mind, not his body, that subdued them. Physically they were his equals or superiors. His superiority lay in his mental resources, and his victory was due solely to his mental superiority. The effect of the conflict, therefore, bore principally upon his mind, and its organ, the brain, very little upon the body; and when we consider the extent of the achievement we cannot be surprised at the result. Such an advantage, if gained by any of the lower animals through variation of physical structure alone, could not but have produced radical and extraordinary changes in size, strength, and utility of natural weapons. In man the influences of variation were exerted upon the brain alone, and the decided increase in size and activity of this organ does not seem too great for the magnitude of the result. The conflict ended, man settled down to quiet consciousness of victory, but with a much larger brain, and greatly superior mental powers than at the beginning of the struggle. This brain and the higher mentality it indicated enabled him to hold the position he had gained, but there was no special further strain upon his powers, and he simply held his own until a new era of war, now between man and man, or between man and cold and stubborn nature, called again upon the resources of the mind, and a new era of intellectual evolution began. It is quite possible, as we have said, that the strain in the former case was equal to that in the latter.

Not every animal is adapted by nature to such an evolution. Nearly every animal would be prevented from it by physical disadvantages. Even the anthropoid apes lack certain essential conditions of structure and habits, though favored by the formation of their hands, and their power of grasping and using weapons. But of all animals, the species from which man descended seems to have been the best adapted, and far the most likely, to become the ancestor of a thinking being. For the mental evolution of man was due not only to his struggle for mastery, but also to special advantages which he possessed in the physical structure and the social relations of his ape ancestor. Let us consider the former of these. We know that the ape family are fruit-eaters, and that trees are their natural habitat. But the larger apes manifest an inclination to descend to the earth, probably from their weight rendering a continual life in trees none too agreeable. The largest of them, the gorilla, dwells almost normally on the ground, and it is quite probable that this was the case with man's ancestor. On the ground apes have to make certain changes in their method of locomotion. In the trees they move in a quadrupedal or in a semi-bipedal attitude, by crawling along the limbs, or by walking along the lower and clasping higher limbs with their hands. On the ground either a quadrupedal, a bipedal, or an intermediate motion must be assumed. The baboons, whose fore and hind limbs are nearly equal in length, have become quadrupeds. The three principal species of anthropoid apes, in each of which the fore limbs are of considerable length, have adopted an intermediate mode of motion, swinging their bodies between their hands. The gibbon alone walks in an erect attitude, its very long arms enabling it to use its hands in walking without bending its body. All these animals are essentially quadrupeds, inasmuch as they use all four limbs in locomotion. The gibbon alone is somewhat inclined to walk as a biped, but not when moving swiftly.

Man is structurally different from all these. His arms are shorter as compared with his legs than in any of the existing large apes. It would be impossible for him to walk in the swinging manner of these apes, or by aiding himself with his hands like the gibbon. Quadrupedal motion on hands and feet would be almost equally difficult for him. If his ancestor was like him in this respect, as was undoubtedly the case, then on descending to the ground it must have been forced to walk on its feet alone, from the much greater difficulty, if not the impossibility, of the other modes of motion.

If man's ancestor, however, became a biped through this necessity, it at once assumed a position of remarkable advantage, becoming the only species among the higher animals that did not have to use all four of its limbs in locomotion. His arms and hands were freed for other purposes, and the grasping powers of the hands added immensely to the advantages which this gave. In fact, there can be no question that man owes his supremacy in the animal world to the possession of two limbs which were free from duty as walking organs and could be used fully for attack and defence, and to the grasping power of his hands, which rendered easy and natural the employment of weapons. To this must be added the mental development which all known anthropoid apes possess. These marked advantages at once changed his relation to the lower world of animals. Flight was no longer necessary to safety. He was able to meet much larger animals on equal ground. He was already, like all the apes, mentally acute, observing, and capable of foreseeing and providing for contingencies. As his power of walking erect became easy and natural, and the adaptation of his arms and hands to the use of weapons grew more definite, his standing in the animal kingdom essentially changed; fear and flight ended, so far as animal foes were concerned, retreat ceased, attack began, his mental acumen was called into active play, and the great battle for mastery of which we have spoken came fully into play.

Still another essential element in this development was the social habit of man's ancestor. If we may judge from the conditions of existing savages, the man-ape was a more social animal than any of the existing anthropoids. The orang and the gorilla are not sociable to any important extent. The chimpanzee is somewhat more so. The indications are that man's ancestor was social in a higher sense than any of these, and employed the principle of mutual aid in a greater degree. It is scarcely necessary to speak of the advantage this would give in the struggle with animals. This advantage is patent. But there is one important result of close social relations of the utmost importance in this connection,—that of education. All social animals educate one another, either with or without design. Anything of importance learned by one member of the group is quickly imparted to all members, and the more rapidly the better their methods of communication and the more complete their system of mutual aid. The lower monkeys teach their young, and indicate to one another anything of importance. There is no doubt that any new and useful weapon or method of assault or defence devised by any member of such a group would become quickly and permanently the property of all the members, and would constitute an important aid in mental development. A long succession of such ideas or inventions, gained by single bright members of evolving mankind, and taught to the others, must have played a highly useful part in the progress from apehood to manhood.

Socialism has been an important requisite of mental evolution throughout the animal kingdom. The highly social ants and bees have raised themselves mentally far beyond all the other insects. The social beavers show a remarkable mental ability as compared with the other rodents. It is, indeed, the communal rather than the simply social animals that have made these great steps of mental progress, those whose labor is devoted solely to the good of the community, and who work in concert for the advantage of each and all. To what extent man was communal in his developing stage it is impossible to say, but the general communism of barbarism may well have been an outgrowth of a primitive condition. There is reason to believe that the individualism which now prevails is of late origin, and was not a characteristic of original man.

One further agency was necessary to man's development—that he should become carnivorous. The apes are fruit-eaters, and lack the native fierceness and the aggressive disposition of the flesh-eating animals. Doubtless man's ancestor was a fruit-eater, but new habits of life probably accustomed him to a mixed fruit and flesh diet at an early period, and the quest of animals for food must have led him to wider excursions and more active enterprise than in the case of any of his frugivorous kindred. Here was an agency calculated to bring him into new scenes and novel relations to nature, and thus greatly to increase the strain upon his faculties and the consequent activity of his mind.

If man came from the ape, it seems certainly very probable that these were the channels of his coming, these the adaptations, the methods, and the exigencies through which a frugivorous ape became an omnivorous man, with a brain like that of the ape in form but greatly developed in size, and faculties like those of the ape in quality, but immensely developed in width and height. From being the equal of the animals he became lord of the animals, their peer perhaps in body, their monarch in mind.[1]

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[1] The views presented in this paper are not offered as original. The argument from the social habits of man has been advanced by myself in a previous paper in the NATURALIST, while as for the general subject of the influence of intelligence on human advancement, it has been dealt with by Prof. E. D. Cope in papers entitled "The Method of Creation of Organic Types," "The Hypothesis of Evolution," "The Review of the Modern Doctrine of Evolution," and others, which may be found in his work entitled "Origin of the Fittest." The influence of Use and Effort, as agents in Evolution, has been dealt with by various American writers. The doctrine of Selection through the Struggle for Existence, in fact, covers all that has been said above, and the only novelty claimed is the particular application of this doctrine to the struggle of man for dominion over the world of brutes, and the influence of this struggle on the growth of the brain and the development of intelligence. This view, so far as the writer knows, has not been advanced before.